"IMPERIAL" TYPE "E" PNEUMATIC HAMMERS

INGERSOLL-RAND COMPANY
11 BROADWAY, NEW YORK

Form No. 8003 May, 1910

"Imperial" Riveting Hammer on Building Construction

"The purposes to which these (pneumatic) hammers may be applied are many. . . . To whatever purpose, however, the hammer may be put, it is necessary to remember that proper efficiency can only be obtained by selecting hammers of suitable weight and stroke for each class of work. No tool can be adapted to all classes of work. It is not uncommon to find operators attaching blame to a tool on account of its failing to successfully do its work, when the real cause of failure is due to the application of the wrong tool. . . In the author's opinion, it is very desirable that the useful capacity of any machine shall be carefully determined and not exceeded, and, as in other classes of machines, it is better to use two or more machines of different sizes than to apply one for doing work beyond its range."

Ewart C. Amos, in Paper before Institution of Mechanical Engineers.

"IMPERIAL" HAMMERS, TYPE "E"

In the pneumatic tool world the name "Imperial" has come to be synonymous with reliability and satisfactory performance. The improved Type "E" Imperial Pneumatic Hammers to which this Bulletin is devoted, represent tools which have been on the market for several years and from which all weaknesses have been eliminated. The new improvements have increased the power, speed and durability of these machines, at the same time practically doing away with all vibration.

Today "Imperial" Hammers are made as well as it is possible to make a tool, in shops equipped with every up-to-date device for producing fine workmanship and specially treated materials of the highest grade.

The fact that "Imperial" Hammers are built by the largest and most responsible Company in the pneumatic tool field is a guarantee that the tools will realize all claims which are made for them.

"Imperial" Pneumatic Hammers are reliable and efficient, and economical in the use of air. They can always be depended upon to do the work for which they are designed at the lowest cost. They operate most successfully under air pressures from 80 to 100 lbs., and under these conditions strike hard, positive and rapid blows of most effective quality. As the piston cushions on live air there is practically no vibration and no annoyance whatever to the operator.

The valve movement of "Imperial" Hammers is extremely simple, consisting of a solid cup-shaped valve moving always in the same direction as the piston. The piston on the return stroke recesses within the cup-shaped valve, giving a longer piston stroke with a shorter cylinder than is possible in other types. This valve movement is positive and entirely free from the "fluttering" which is so prominent a fault in many other types.

All parts of these hammers are built on the interchangeable system and are guaranteed to fit. Any ordinary mechanic can readily make such repairs as are usually required. The perfection of design, the efficiency of the port lay-out, the quality of material and workmanship, and the system under which they are assembled and constructed, enables the Company to offer "Imperial" Hammers as superior to any other tools for like service on the market; and their expense for repairs will be only a nominal item under proper care.

Table of Dimensions and Capacities of Standard Type "E" Chipping and Riveting Hammers

Type "E" Scaling Hammers

Telegraph Name	Size No.	Weight Pounds	Cubic Ft. Free Air Per Min. at 80 lbs. Pressure	Piston Stroke Inches	Length Over All Inches	Suitable for	Equipment
Hardier	0	5½	13½	1¼	9½	Nos. 0 and 00 Very Light Chipping or Calking; Scaling Paint or Rust on Iron; for Heavy Cutting or Roughing on Stone.	SCALING AND CHIPPING HAMMERS 1 Hose Nipple 1 Wrench 1 Strainer 3 Chisel Blanks with shanks as ordered
Hardiesse	00	6	11	1¼	10½		

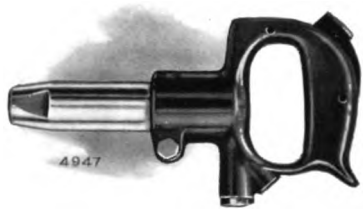
Type "E" Chippers

Telegraph Name	Style of Bushing	Size No.	Weight Pounds	Cubic Ft. Free Air Per Min. at 80 lbs. Pressure	Piston Stroke Inches	Length Over All Inches	Suitable for	Equipment
Hardde	Hexagon Bushing	1	11½	18¾	1½	11	No. 1 Chipping and Calking Bath Tubs and Range Boilers and other Light Work No. 2 Light Chipping and Calking Beading Flues and Scaling Castings No. 3 General Chipping and Calking No. 4 Heavy Chipping and Calking No. 5 Extra Heavy Chipping and Calking	SCALING AND CHIPPING HAMMERS 1 Hose Nipple 1 Wrench 1 Strainer 3 Chisel Blanks with shanks as ordered
Harddraven	" "	2	12¼	18	2	12		
Hardebol	" "	3	13½	19½	3	14		
Hardecanut	" "	4	15	19¾	4	16		
Hardening	" "	5	16½	18¾	5	17½		
Hardesvogt	Round "	1	11½	18¾	1½	11		
Hardgeel	" "	2	12¼	18	2	12		
Hardhandig	" "	3	13½	19½	3	14		
Hardhead	" "	4	15	19½	4	16		
Hardhoorig	" "	5	16½	18½	5	17½		

Type "E" Riveters

Telegraph Name	Size No.	Weight Pounds	Cubic Ft. Free Air Per Min. at 80 lbs. Pressure	Piston Stroke Inches	Length Over All Inches	Style — Long Stroke Riveting Hammers Suitable for	Equipment
Hardigheid	40	15	19½	4	16	No. 40 Driving Rivets, ½" Diameter and less. No. 50 Driving Rivets, ⅝" Diameter and less. No. 66 Driving Rivets, ¾" Diameter and less. No. 99 Driving Rivets, 1¼" Diameter and less.	RIVETING HAMMERS 1 Hose Nipple 1 Strainer 1 Wrench 3 Rivet Sets, blank or finished 1 Rivet Set Clip or Spring
Hardihood	50	16½	18½	5	17½		
Hardiment	66	20	30	6	17¾		
Hardkelk	99	23	30½	9	20¼		

"Imperial" Type "E" Scaling Hammers



"Imperial" Type "E" Scaling Hammer

Size "O"

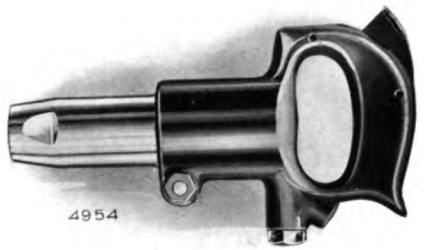
For very light chipping or calking; scaling paint or rust on iron; heavy cutting or roughing on stone.

"Imperial" Type "E" Scaling Hammer

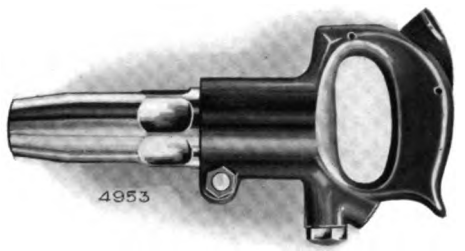
Size "OO"

For very light chipping or calking; scaling paint or rust on iron; heavy cutting or roughing on stone.

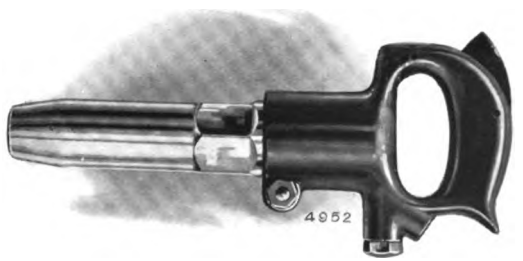
"Imperial" Type "E" Chipping Hammers



"Imperial" Type "E" Chipping Hammer. No. 1
For chipping and calking bath tubs, range boilers and other light work.



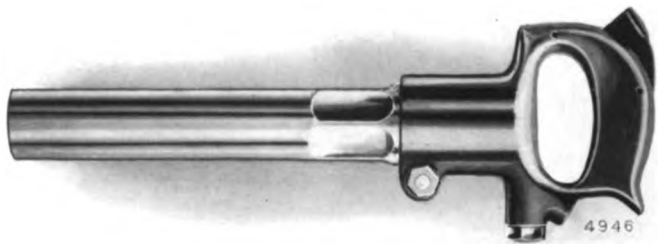
"Imperial" Type "E" Chipping Hammer. No. 2
For light chipping and calking; beading flues and scaling castings.



"Imperial" Type "E" Chipping Hammer. No. 3
For general chipping and calking.

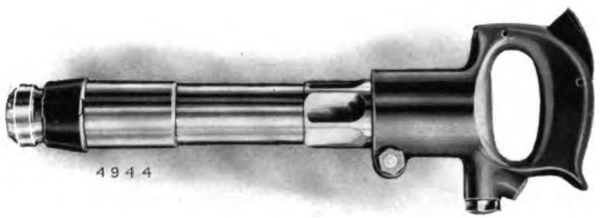
"Imperial" Type "E" Chipping Hammers

"Imperial" Type "E" Chipping Hammer. No. 4
For heavy chipping and calking.

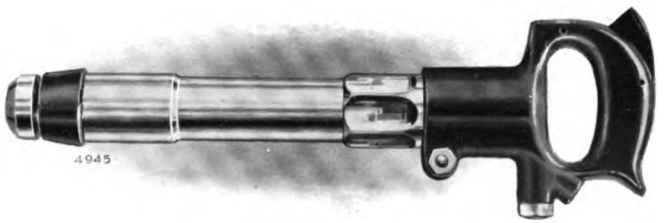


"Imperial" Type "E" Chipping Hammer. No. 5
For extra heavy chipping and calking.

"Imperial" Type "E" Riveting Hammers

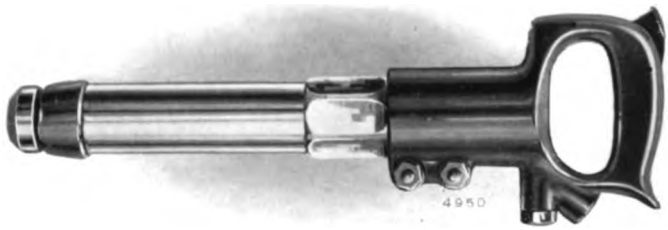


"Imperial" Type "E" Riveting Hammer. No. 40
For driving rivets up to ½-inch diameter.

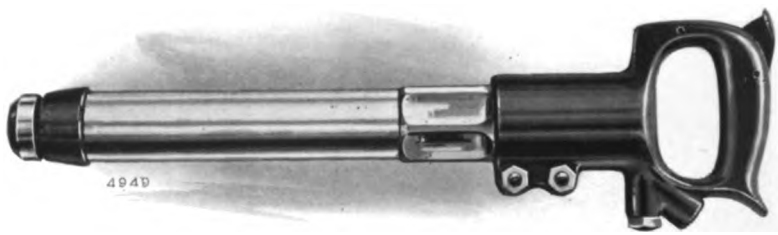


"Imperial" Type "E" Riveting Hammer. No. 50
For driving rivets up to ¾-inch diameter.

"Imperial" Type "E" Riveting Hammers



"Imperial" Type "E" Riveting Hammer. No. 66
For driving rivets up to ⅞-inch diameter.



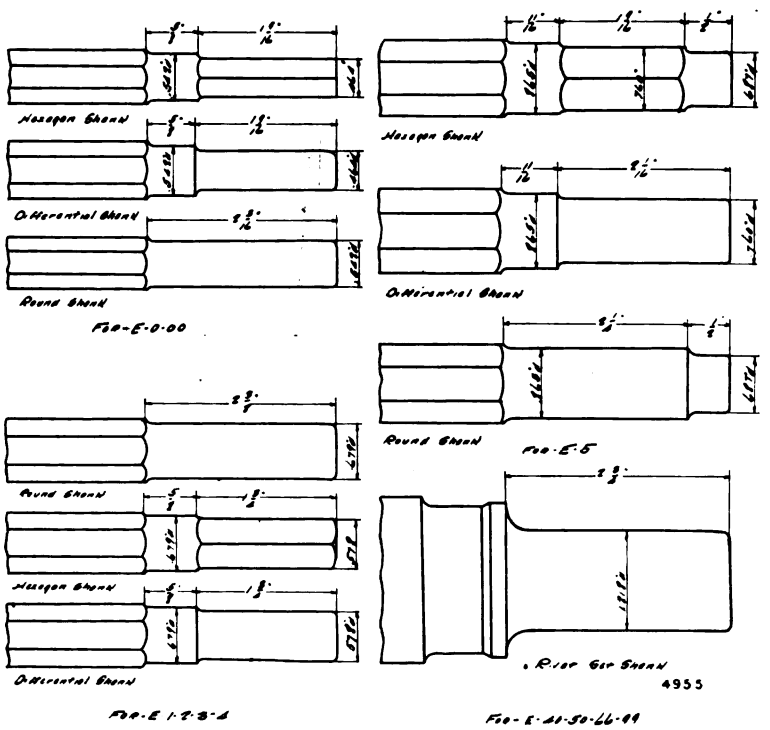
"Imperial" Type "E" Riveting Hammer. No. 99
For driving rivets up to 1¼-inch diameter.

Chisel and Rivet Set Shanks

Each new hammer, when shipped, has three chisels or three rivet sets, depending on whether it is a chipping or riveting hammer.

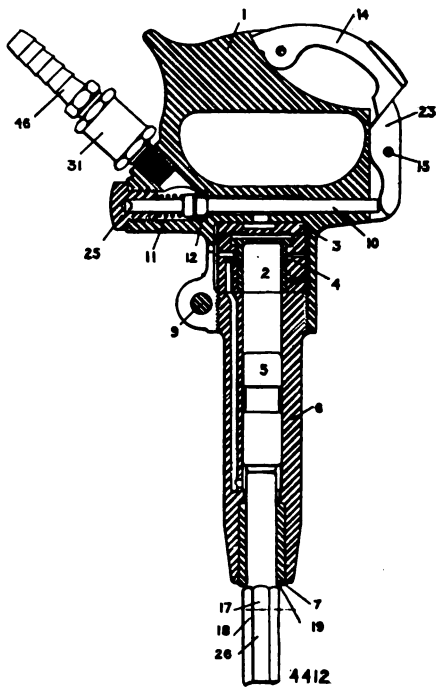
The shanks of these blanks are made to snugly fit the bushing in the end of the tool, and it is important that a reasonably close fit be maintained, as otherwise air leaks past the shank, and the tool will not work to best advantage.

The shank dimensions given on cut herewith are standard, and should be used in re-forming old or making new tools.



Duplicate Part List

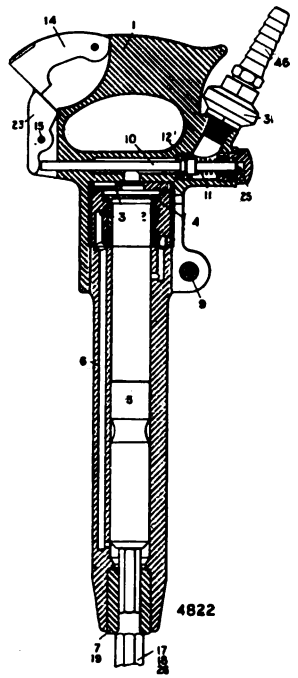
"Imperial" Scaling Hammers. Sizes E-o and E-oo



Telegraph Name	Part No.	Symbol	Name of Part
Hedymeles	1	E0	Handle Bare
Hedyphane	9	E0	Handle Clamp Bolt and Nut
Hedypnois	10	E0	Throttle Valve
Hedysare	11	B1	Throttle Valve Spring
Hedysarum	12	E0	Throttle Valve Seat
Hedysma	14	E0	Throttle Lever
Hedysmata	15	B1	Throttle Lever Pin (2)
Hedysmatis	23	E0	Intermediate Lever
Heedfully	25	E0	Throttle Valve Cap
Heedily	.....	.....	Handle, Complete
Heediness	2	E0	Valve
Heedlessly	3	E0	Valve Box Cap
Heehawed	4	E0	Valve Box
Heehawing	.....	.....	Valve Box, Complete parts 2, 3 and 4
Heelemaal	5	E0	Piston No. 0
Heelgoed	5	E00	Piston No. 00
Heelhout	6	E0	Cylinder No. 0
Heeling	6	E00	Cylinder No. 00
Heelkracht	7	E0	Hexagon Cylinder Bushing
Heelkruid	17	E0	Round Chisel Blank
Heelkundig	18	E0	Hexagon Chisel Blank
Heelshuldos	19	E0	Round Cylinder Bushing
Heelster	26	E0	Differential Chisel Blank
Heelwortel	27	E0	Wrench
Heemer	31	E0	Strainer, Complete
Heempjes	46	A1	Hose Nipple

Duplicate Part List

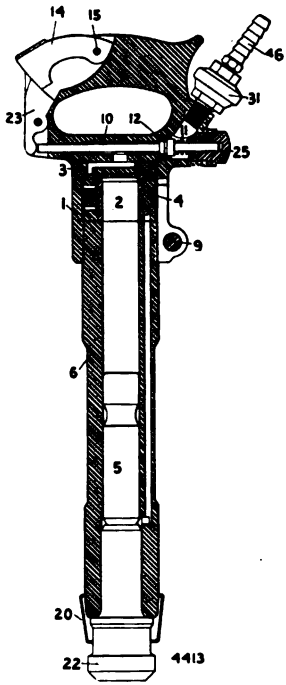
"Imperial" Chipping Hammers. E-1, E-2, E-3, E-4 and E-5



Telegraph Name	Part No.	Symbol	Name of Part
Harpooning	1	E3	Handle Bare
Harpress	9	E3	Handle Clamp Bolt and Nut
Harpsichon	10	B4	Throttle Valve
Harpsnaar	11	B1	Throttle Valve Spring
Harpspel	12	B4	Throttle Valve Seat
Harpster	14	E3	Throttle Lever
Harptoon	15	B1	Throttle Lever Pin (2)
Harpulzen	23	E3	Intermediate Lever
Harpule	25	B1	Throttle Valve Cap
Harquebuss	.....	.....	Handle Complete
Harraging	2	E3	Valve
Harrender	3	E3	Valve Box Cap
Harriman	4	E3	Valve Box, Hammers Nos. 1, 2, 3, 4, 5
Harriveau	.....	.....	Valve Box Complete, Parts 2, 3 and 4
Harsachtig	5	E1	Piston No. 1
Harsboom	5	E2	Piston No. 2
Harschheit	5	E3	Piston No. 3
Harsgom	5	E4	Piston Nos. 4, 5
Harshened	6	E1	Cylinder No. 1
Harshening	6	E2	Cylinder No. 2
Harshly	6	E3	Cylinder No. 3
Harshness	6	E4	Cylinder No. 4
Harskoek	6	E5	Cylinder No. 5
Harskoeken	7	B1	Hexagon Cyl. Bushing Nos. 1, 2, 3, 4
Harsolle	7	B5	Hexagon Cyl. Bushing No. 5
Harsplant	17	B1	Round Chisel Blank Nos. 1, 2, 3, 4
Harsthorn	17	B5	Round Chisel Blank No. 5
Harstoel	18	B1	Hexagon Chisel Blank Nos. 1, 2, 3, 4
Harsvernis	18	B5	Hexagon Chisel Blank No. 5
Harswinde	19	B1	Round Cyl. Bushing Nos. 1, 2, 3, 4
Harszalf	19	B5	Round Cyl. Bushing No. 5
Harszeep	26	B1	Differential Chisel Blank Nos. 1, 2, 3, 4
Hartabas	26	B5	Differential Chisel Blank No. 5
Hartaderen	27	B1	Wrench
Hartals	31	E66	Strainer Complete
Hartaknud	38	B1	Octagon Chisel Blank Nos. 1, 2, 3, 4
Hartall	39	B1	Octagon Cyl. Bushing Nos. 1, 2, 3, 4
Hartaramos	46	A1	Hose Nipple

Duplicate Part List

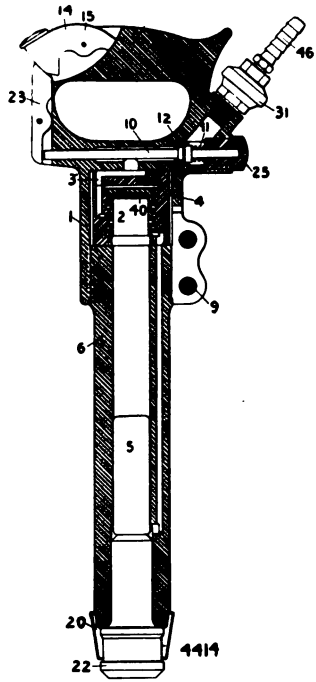
"Imperial" Riveting Hammers. E-40 and E-50



Telegraph Name	Part No.	Symbol	Name of Part
Hartaran	1	E3	Handle Bare
Hartazgo	9	E3	Handle Clamp Bolt and Nut
Hartebloed	10	B4	Throttle Valve
Hartedief	11	B1	Throttle Valve Spring
Hartelijk	12	B4	Throttle Valve Seat
Harteloos	14	E3	Throttle Lever
Hartelust	15	B1	Throttle Lever Pin (2)
Hartemos	23	E3	Intermediate Lever
Hartevlies	25	B1	Throttle Valve Cap
Hartewee	.....	.....	Handle Complete
Hartewond	2	E3	Valve
Hartfutter	3	E3	Valve Box Cap
Harthaut	4	E3	Valve Box
Hartheide	.....	.....	Valve Box Complete Nos. 2, 3 and 4
Hartine	5	E66	Piston
Hartjes	6	E40	Cylinder No. 40
Hartjesdag	6	E50	Cylinder No. 50
Hartkelch	20	B66	Rivet Set Spring
Hartklep	22	B66	Rivet Set Blank
Hartkller	22A	B66	Rivet Set Finished
Hartkopf	27	B1	Wrench
Hartkorn	31	E66	Strainer Complete
Hartkruid	46	A1	Hose Nipple

Duplicate Part List

"Imperial" Riveting Hammers. E-66 and E-99



Telegraph Name	Part No.	Symbol	Name of Part
Hartkuil	1	E-66	Handle Bare
Hartkwaal	9	E3	Handle Clamp Bolt and Nut (2)
Hartlappen	10	E-66	Throttle Valve
Hartlebig	11	B1	Throttle Valve Spring
Hartley	12	B4	Throttle Valve Seat
Hartlings	14	B1	Throttle Lever
Hartmangan	15	B1	Throttle Lever Pin (2)
Hartmossel	23	B6	Intermediate Lever
Hartobst	25	B1	Throttle Valve Cap
Hartobstes	.....	.....	Handle, Complete
Hartoor	2	E-66	Valve
Hartpijn	3	E-66	Valve Box Cap
Hartpijnen	4	E-66	Valve Box
Hartrindig	.....	.....	Valve Box, Complete Nos. 2, 3 and 4
Hartschild	5	E-66	Piston
Hartshorn	6	E-66	Cylinder No. 66
Hartsinn	6	E-99	Cylinder No. 99
Hartslag	20	B-66	Rivet Set Spring
Hartstich	22	B-66	Rivet Set Blank
Hartstueck	22A	B-66	Rivet Set Finished (to 1 inch)
Harttraber	22B	B-66	Rivet Set Finished (over 1 inch)
Hartvijl	27	B1	Wrench
Hartvlies	31	E-66	Strainer, Complete
Hartvormig	46	A1	Hose Nipple

The Care of "Imperial" Type "E" Hammers

It is doubtful if any piece of machinery pays greater profit on its cost than a Pneumatic Hammer in good working condition. It is also doubtful if any piece of high-speed machinery is so much abused by neglect as to cleaning and oiling.

It is essential to the good working and durability of all Pneumatic Hammers that they be kept *clean and well oiled.* This should not be delayed until the tool stops working on account of dirt, rust or gummed oil. Clean thoroughly with kerosene or benzine before oiling, when ready to put the tool in operation. Do this by immersing the entire tool in kerosene, or, better still, by suspending the tools completely immersed in kerosene when not in use.

All Hammers should be oiled through the hose nipple on the end of the handle before being put in service. Only good, light body oil should be used. Sewing machine oil is very good. Heavy oils should be avoided, as they gum up and cause the tool to work sluggishly, with consequent loss of power.

It will handsomely repay any user of Pneumatic Hammers to keep the inside of the tools as clean and well oiled as a sportsman does his gun.

The construction of "Imperial" hammers is such that none of the parts will break from service, and the tools will always work well and maintain their efficiency for an indefinite length of time if they are kept clean and oiled as above directed.

The Abuse of Short Pistons

Probably no labor-saving device (with the possible exception of the rock drill) is exposed to so much neglect, if not absolute abuse, as the pneumatic hammer under average working conditions. Without going into details as to the various elements which may cut down the efficiency of the hammer, particular attention is called at this time to one of the most flagrant abuses to which riveting hammers can be subjected. This is the substitution of short pistons.

The riveting hammer is carefully designed by its builders, with all parts properly proportioned and with the port layouts accurately determined, to meet the requirements of the particular class of work for which the tool is intended. Operators, however, have learned from experience that if a piston a fraction of an inch shorter than the standard piston is substituted, the hammer will deliver a hard, powerful blow and thus, temporarily at least, increase the amount of work which they can do in a given time. Disastrous results are sure to follow.

These short pistons, usually improperly hardened and of inferior material, have a tendency to break or crumble under the heavier blow. The broken parts cut or score the bore of the cylinder, and it is only a question of time until the cylinder is injured beyond repair or the handle is broken.

When cracked or cut cylinders, and broken handles and rivet sets are encountered, the cause is usually to be found in this substitution of short pistons. Even though the tool may have had the proper piston when delivered to the operator it has been found that workmen frequently carry with them the shorter pistons which are substituted for the right ones after taking the hammer out of the tool room.

After the work has been done the short piston is withdrawn and the right piston returned when the tool is turned in.

Attention is called to this point because experience has shown that a very large percentage of the failures in pneumatic riveting hammers can be traced to this cause.

Shipping Instructions

Attention is called to the fact that when it is necessary to return Imperial type "E" hammers to the factory for repairs or any other reasons they should be consigned to the Ingersoll-Rand Co., Athens, Pa.

GRIFFITH - STILLINGS PRESS
368 CONGRESS ST., BOSTON